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ABSTRACT

This study examines the differential effects of spatial density on five-year-old children who were divided into "low" and "high" on dimensions of hyperactivity-distractibility, anxiety, hostility-aggressiveness, behavior disturbance, and motor inhibition. Sex differences in interaction with the above behavioral dimensions were also investigated. High-anxiety children expressed more negative affect and liked others less in the high-density condition compared to the low-density condition, while no density effect was found for the low-anxiety children for these variables. The high density condition intensified the distress and anger of high-anxiety children but not low-anxiety children. High-anxiety children tended to respond to a high density condition with emotional helplessness whereas low-anxiety children responded with motoric coping behaviors such as reduced walking and increased facing out. In addition, low-behaviorally disturbed children were more physically inactive in the high density condition than in the low, while the high-behaviorally disturbed children showed no such effect. Density did not differentially affect low- from high-hostile-aggressive children. In general, normal children motorically adjusted to a high-density condition to a greater degree than children with behavior problems. (Author/PFS)

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The Differential Effects of Spatial Density on Low and High Scorers on Behavior Problem Indices[1]

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Research on the effects of crowding on children has been motivated by practical concern for how classroom size affects the behavior of children and by ecological concern over the effects of increasing urban density on families and communities. While research has been conducted on the effects of density on groups of children, little is known about individual differences in children's response to crowding. The purpose of this study was to examine the differential effects of spatial density on children who score low and high on dimensions of hyperactivity-distractibility, anxiety, hostility-aggressiveness, behavior disturbance, and impulsivity.

The study of individual differences among children has been of great concern to educators and psychologists who work with children in applied settings. The Behavior Rating Scale for the Preschool Child was developed by Behar and Stringfield (1974) to assist educators and psychologists in identifying preschoolers with behavior problems on four dimensions: hyperactivity-distractibility, anxiety, hostility-aggressiveness, and behavior disturbance. This scale consists of a checklist of specific behaviors with a weighting based on frequency of occurrence of these behaviors. The Preschool Behavior Questionnaire (PBQ) was given to each teacher to fill out on each participating child. The Draw-A-Line-Slowly test, a measure of motor inhibition, was

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administered to each child as well.

Seventy-two children (36 girls and 36 boys) from nearby preschool classes participated in the study. There were 12 groups of six children each; three girls and three boys comprised each group. Each group participated in two free-play sessions of 54 minutes each and were rated from behind one-way mirrors on numerous variables dealing with extent and quality of social interaction, activity mode and level, instability of activity, avoidance behaviors, and affect. Measures of degree of liking of others and the room were also obtained through a post-experimental interview with each child separately. A repeated measures design was used in which children underwent both a low and a high density condition. The low density condition was a room of 260.5 square feet, or 43.4 square feet per person; the high density condition comprised 130.8 square feet, or 21.8 square feet per person.

A median split was performed on the scores for hyperactive-distractible, anxiety, hostility-aggressiveness, behavior disturbance, and motor inhibition. Those children who scored below the median were designated as "low's" and those who scored above the median were designated as "high's" for each of the behavior problem dimensions.

An analysis of variance with unequal cell sizes was performed for Density, Sex, and each of the PBQ scales and motor inhibition. We found that density had differential effects on low and high scorers on dimensions of hyperactivity-distractibility, anxiety, and behavioral disturbance and that density affected motorically-controlled children differently than impulsive children. Density did not differentially affect low and high scorers on hostility-aggressiveness which may be due to its being a response characteristic rather than a pervasive personality trait. The effects that were found on the

other dimensions were on activity mode and level, avoidance behaviors, affect, and reported liking of others and the room. Differential effects were not found for any of the dependent variables that measured extent or quality of social interaction or instability of activity.

Density differentially affected low-aand high-hyperactive-distractible children in terms of activity mode and level. High-hyperactive-distractible children were affected by density to a greater extent than low-hyperactive-distractible children. High-hyperactive-distractible children, particularly boys, sat half as often in the high-density condition as in the low-density condition. Also, in the high-density condition, high-hyperactive-distractible children sat less than low-hyperactive-distractible children. Sitting is a position associated with calm and sedentary behavior and/or with prolonged and involved toy play. Crowded conditions made it difficult for high-hyperactive boys to engage in sedentary and prolonged play. High-hyperactive boys walked more and were more active in the high-density condition than in the low-density condition while no density effects were found for low-hyperactive children. The predisposition of high-hyperactive children, particularly boys, towards motoric activity was intensified through motoric channels in the high-density condition.

More distress and anger were expressed by high-anxiety children in the high-density condition than in the low-density condition, while no such effect was found for low-anxiety children. Furthermore, lower interpersonal attraction was found for the high-anxiety children in the high-density condition than was found for the low-density condition. Thus children who are predisposed to anxiety evidenced stronger negative feelings and anxiety in a high-density condition. Furthermore, low-anxiety children reacted to the high-density condition in a functional stress-reducing style, by reducing

their frequency of walking and by increasing their frequency of facing out. High-anxiety children, however, showed no such changes. High-anxiety children may behave in ways which are dysfunctional to stress-reduction and may need help in channeling their distress into more stress-reducing behaviors. In fact, high-anxiety children may display more negative affect in a crowded condition because they fail to utilize functional avoidant strategies that are used by low-anxiety children.

Low-behaviorally-disturbed children in the high-density condition showed less toy play, walked less, and were more inactive than they were in the low-density condition. In the high-density condition, high-behaviorally-disturbed children showed a tendency to walk more than low-behaviorally-disturbed children. Thus low-behaviorally-disturbed children displayed greater flexibility in altering certain behaviors to meet the physical constraints of the crowded situation and thus reduce stress whereas high-behaviorally-disturbed children failed to respond in such a flexible and adaptive manner.

High-motor-inhibitors showed greater behavioral effects of density than impulsive children. In the high-density condition, high-motor-inhibitors attempted to escape twice as much and located themselves on the fringes of the room one and a half times more often than impulsive children did. In the high-density condition, high-motor inhibitors stood more than impulsive children. On the other hand, impulsive children demonstrated seven times more negative affect in the high-density condition than in the low-density condition. Also in the high-density condition, impulsive children showed three times more negative affect than high-motor-inhibitors. A similar "emotionally-helpless" phenomenon resulted from the high-density condition for impulsive and anxious children. Motorically-controlled children used active, behavioral means of responding to stress while impulsive children displayed emotional stress.

Freedman's (1975) density-intensity hypothesis was not confirmed for the hostile-aggressive variable but was confirmed for hyperactivity and anxiety dimensions.

Our findings suggest that normal children adjust to a high-spatial density condition to a greater degree than children who have some evidence of behavior problems. Furthermore, a high-spatial density condition tends to be experienced more negatively by children with behavior problems; this may be due to the fact that children with behavior problems do not adjust as well and thus are greater victims of the stresses of a crowded condition than normal children or that children with behavior problems may be more emotionally sensitive to a restrictive or stressful physical environment. These findings are provocative in leading us to question how such reactions might affect the parents of such children, particularly for families forced to live in crowded conditions. For instance, it is quite feasible that a relationship between crowding and child abuse exists, particular in the case of a child who evidences some behavior problem related to anxiety, impulsivity, or hyperactivity. Our findings indicate that anxious and impulsive children responded with expressions of anger and distress when they are "crowded," Paulson and Blake (1969) found that some of the reasons parents have given for abusing their child include behaviors related to anger and distress, such as the child's crying, wetting/soiling his/her pants, not obeying, or stubbornness or impudence. The possible relationship between crowding and child abuse in the home deserves further exploration, particularly in view of recent N.I.H. statistics on the widespread evidence of child abuse in our society.

Our findings also suggest that the differential approach to the study of crowding provides heuristically relevant results. It behooves researchers

in crowding to explore the existence of "high risk" groups in terms of negative or dysfunctional responses to environmental stress. We need to ascertain what types of people are more or less affected by crowding and in what ways such an effect would be demonstrated. In this study, we did not use "clinically-diagnosed" groups of children with behavior problems, thus we did not investigate severely,disturbed children. However, we have found it ethically difficult to study the severely disturbed, for the high-density condition caused the recurrence of behaviors that teachers had worked to extinguish. This information does suggest, however, how stressful a crowded environment is to disturbed children, which supports our findings.

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